



for buying a **Solar Electric System**

Are you thinking about generating your own electricity? Here are some **F**requently **A**ssembled **Q**uestions that can help you decide if investing in a solar electric system is right for you.

Q What is a solar electric or photovoltaic system?

Solar electric or photovoltaic (PV) systems use the sun's energy to make electricity. PV technology produces direct current electricity by collecting electrons freed by the interaction between sunlight and the semiconductor materials in a PV cell.

Q Why should I consider buying a PV system?

A PV system reduces or eliminates the amount of electricity you purchase from your utility or electric service provider. A PV system can save you money on your electricity bill and act as a hedge against future price increases. The electricity generated by your PV system is clean, renewable and reliable. You help your community by reducing the load on the utility grid and you can provide additional electricity for the grid when you generate more than you use during the day, when electricity demand is highest.

Q Do I have a good site for PV?

Your site must have clear, unobstructed access to the sun. Buildings, trees or other vegetation should not shade your site. South-facing roof exposure is best, but roofs facing east and west may be OK. If a rooftop is not available, your PV system can also be mounted on the ground.

Q What should the size of my PV system be?

You can match the size of your system to your electricity needs and budget. The average household in California uses about 6,500 kilowatt-hours (kWh) per year. If your usage is typical of the average household, a system in the 3 to 4 kilowatt (kW) range would be adequate to meet most of your electricity needs.

To estimate the best system size for your home or business, examine your electricity usage for the last 12 months and apply this easy formula.

Annual Usage		1 kW System Output*		System Capacity
6,500 kWh	÷	1750 kWh	=	3.71 kW

A system with a capacity of 1 kW can produce about 1750 kWh per year. Divide your annual electricity usage (in kWh per year) by 1750 kWh to get the system size (capacity in kilowatts) that would meet most of your electricity needs. If you want your PV system to meet half of your electricity needs, then you should size it to meet half of your annual electrical usage. Or you can offset only a small portion of your electricity bill with a single PV panel. If you size your system larger than your average electricity needs, for example to meet your highest electricity needs on summer afternoons, your system would generate more electricity than you could use during the rest of the year.

Q How much mounting space do I need?

A small PV system can use as little as 50 square feet. A larger system, to meet the needs of a typical household, would use between 300 to 600 square feet. As a rule of thumb, 100 square feet of PV area produces 1 kilowatt of electricity.

Q Are there any special features I should consider?

An inverter is needed to change the direct current (DC) power from the solar panels into alternating current (AC) electricity to power your electrical devices and to be compatible with the electric grid. Batteries can provide back-up power for your home or business in case of grid outages, but they also increase your costs.

Q How much does a PV system cost?

Although many factors affect the cost, an average PV system costs from \$9 to \$10 dollars a watt, including installation, or \$18,000 to \$20,000 for a 2 kW system.

Q Are there any incentives or rebates available?

YES! The California Energy Commission's Emerging Renewables Program offers cash rebates on eligible PV systems. To find out what the current rebate level is, please contact the Energy Commission (see back page for toll free number, E-mail, or website).

* 1750 kWh per year is based on a 20 percent capacity factor. Capacity factor varies with location.



Am I eligible for a rebate?

If you live in the electricity service territory of Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company, you are eligible for the Emerging Renewables Program rebate. Either you or your system retailer can apply for the rebate.



Are there any financing programs available?

The best way to finance a PV system for your home is through a mortgage loan that includes a primary mortgage, second mortgage or home equity loan secured by your property. If mortgage financing is not available, look for other sources such as conventional bank loans. A list of companies that finance PV systems can be found on the California Energy Commission's Website at http://www.consumerenergycenter.org/erprebate/financing_intro.html.



What do I need to know about connecting my PV system to the grid?

You will need to enter into an Interconnection Agreement with your utility. This agreement addresses the terms and conditions under which your system will be safely connected to the grid. The agreement also specifies the metering arrangements (called **Net Metering**). Net Metering allows you to "bank" any surplus electricity your system generates on the electric grid.

Excess electricity might be generated during the day when your system produces more electricity than you need. Your meter would simply run backwards to record the amount of electricity banked on the grid. You can use an equal amount of electricity later without incurring any additional cost. If you use more electricity from the grid than you have banked, your utility will charge you annually for the difference. (Please refer to the Energy Commission's *ABC's of Net Metering* for more information.)



How do I find a PV retailer?

The California Energy Commission and the California Solar Energy Industries Association provide lists of PV retailers. Retailers either can provide installation or can refer you to installation contractors in your area. Try to find a company located in the area where your system will be installed. Price is only one factor when selecting a PV company and/or contractor.

Here are some other considerations:

- Does the company have experience installing grid-connected systems?
- How many years has the company been in the business of installing PV systems?
- Does the company use licensed California contractors?
- Does the company have any judgments or liens against it?
- Will the company provide references of previous customers?
- If you get more than one bid, make sure that the bids are for the same system.



How can I get more information?

Information on the Emerging Renewables Program including rebate application forms and other materials can be obtained from:

California Energy Commission

Call Center: (800) 555-7794

E-mail: renewable@energy.state.ca.us

www.consumerenergycenter.org

Additional information about solar energy can be obtained from:

California Solar Energy Industries Association

Phone: (800) 225-7799

Website: www.calseia.org



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